less real and serious; but the recognition of the factors is one of the essential avenues for help and will alone free the patient from the sad faith in routine bred in many hospitals. It is certainly absolutely essential for non-institutional care of mental disorders.

NEW YORK NEUROLOGICAL SOCIETY.

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The President, Dr. Joseph Fraenkel, in the Chair.

THE MECHANICAL TREATMENT OF NERVOUS DISEASES.

By Dr. H. S. Frenkel, of Heiden, Switzerland.

By the mechanical treatment of nervous diseases was understood a treatment which did not deal with drugs nor physical means, such as hydrotherapy, electricity, etc., but one wherein the therapeutic factors depended upon the functions of the muscles themselves, and might consist in active or passive movements, or in changes of nutrition and assimilation, as was supposed to be produced by massage of the muscles. The mechanical treatment was not much appreciated by the scientific world until the results of the re-educational treatment suddenly suggested the possibility of improvement or cure in organic disease. One of the most important diseases in which the mechanical treatment had been tried, following the good results of the educational treatment of locomotor ataxia, was hemiplegia. To improve the power of standing and walking in the hemiplegics, Dr. Frenkel laid a great deal of stress on exercising the healthy side in order to make it compensate in a certain degree the function of the paralyzed side. The system of "Bahnender and Mermender Therapy" had been recommended also in the chronic spastic spinal cord diseases, for instance, lateral sclerosis and multiple sclerosis, but Dr. Frenkel had never seen any improvement in these cases; on the contrary, he had observed a more rapid course of the disease. A special point of interest was that those cases of multiple sclerosis with intentional tremor of the hands, and unaccompanied by muscular weakness, could be improved by exercises graduated similarly to those of tabetic ataxia of the upper extremities.

ORTHOPEDIC TREATMENT IN NERVOUS DISEASES.

By Dr. Frenkel.

One of the diseases in which one saw excellent results from orthopedic procedures was a spastic paraplegia due to spondylitis. Dr. Frenkel had himself seen some cases of total paraplegia with all the signs of spasticity disappear completely by extension continued for a long time. In a special form of pseudo-muscular hypertrophy in which the atrophy of the soleus muscle was combined with a slow retraction of the tendon, he could improve the act of walking by an orthopedic apparatus which fixed the foot at a right angle, so that in walking the toes did not touch the ground first. He cautioned against ever allowing tenotomy in organic nervous diseases where there was muscular weakness. In poliomyelitis anterior improvement would not follow any exercise, but good orthopedic measures could greatly benefit the patient. In multiple neuritis in the acute stage, mechanical treatment should be absolutely avoided. In chronic alcoholic multiple neuritis convalescence in many cases would be shortened by the use of moderate massage and passive movements. In paralysis agitans, where the other muscles were in a good condition, by carefully suggested active innervation one could make these patients walk normally again for a time.

From what he had said before, one could conclude that the optimistic idea which prevailed at least in Europe among the practicing physicians and also amongst the neurologists who did not occupy themselves with this question, was not well founded, in so far as the degenerative motor lesions of the brain and spinal cord were concerned. There was danger that neurology, through this optimism, would be set aside from the ways that were successfully pursued by internal medicine, and which might bring us to the knowledge of the course of disease, and thus to a causal instead of symptomatic treatment. He meant by this the biological methods of investigation which were so closely connected with bacteriological and chemical methods, such as the investigation of organic poisons and their antidotes. There was a field for experimental investigation in the central nervous system. If the nature of the different forms of degeneration of the nerves, of sclerosis, etc., could be recognized as being produced by certain poisons, it would not be utopian to say that antitoxins would be found. In short, neurology should not content itself with dazzling installations of mechanical and electrical appliances for symptomatic treatment, but it should take an important part in the research of the causes of the diseases with which it had to deal. If neurology did not apply itself more to the casual researches than it had hitherto, it was certain that internal medicine would replace it in this most important part. For this reason, he was proud to say that the newly built nervous clinic in Berlin, with which he was connected had gotten recently the most perfect installations for chemical, experimental bacteriological and biological investigations.

Dr. M. Allen Starr said he was very much interested in Dr. Frenkel's paper, particularly as he had covered such a large ground and had pointed out to them lines of therapeutics in a great many different directions. Personally, he was familiar with Dr. Frenkel's written works upon tabes and its treatment, and had been wonderfully impressed and surprised at the success he had had in the treatment of several of his own private patients that he had sent to him on the other side. Dr. Starr supposed that a good deal of this mechanical treatment was limited to the treatment of tabes dorsalis. It had not occurred to him that there were so many various types of nervous disease which were open to this method of education of the muscles. For this reason, he said he was impressed with what had been read, which opened up a very hopeful view. It seemed to him that if this mechanical treatment, when carried out in tabes, could be applied to other diseases, it was our duty to apply it. Dr. Starr said that after a careful study of the method, he would adopt it. He believed that particularly in hemiplegia, decided benefit would accrue to the patients from proper training of the muscles. He was impressed with the statements made regarding paralysis agitans, because he was convinced from his own experience in the treatment of that disease that benefit could be had from the proper education of the muscles. He had had several cases of paralysis agitans where material benefit followed massage given by Swedish masseurs who had educated the muscles. He was convinced that the method had a very wide application. He believed they were much indebted to Dr. Frenkel for bringing this subject before them, and showing the wide application of the method.

Dr. B. Sachs said he was indeed very much interested in Dr. Frenkel's conservative views, and he thought it was safe to say that his opinion regarding the limited application of the mechanical treatment in organic nervous diseases were shared by the larger number of American neurologists, and perhaps by the orthopedic surgeons as well. But there were one or two points in which his conservatism exceeded the views held by some here. If he understood Dr. Frenkel correctly, he stated that he did not think the mechanical treatment aided very materially in those conditions in which the limbs were paralyzed from organic lesions. Dr. Sachs was not disposed to agree with him on this point. There was one period, for instance, in the treatment of hemiplegias, in which he thought the spastic contractions might be benefited. In his own experience with patients recovering from apoplexy and hemiplegia, if the patient possesses a certain amount of motion, if you ask him to try and move the limb more and more, you would find that by such encouragement, movements will be made by the muscles of the affected side, and the patients would ultimately succeed better than if this effort was not directed to those parts. While it was difficult to force a path through sclerotic tissues he believed motor impulses could be forced through, if the tissues were not wholly destroyed. Following these apoplectic seizures, he believed more could be done than Dr. Frenkel implied, although in the main he was disposed to agree with him. There was another form of organic disease successfully treated in this country, and Dr. Sachs' experience with it dated back to an early association with Dr. Gibney, and that was in post-hemiplegic athetosis and in post-hemiplegic contractures; here, the application of suitable splints to the paralyzed limbs for weeks and months would result in some relaxation of the contractures, and this relaxation offered some possibility of education by the method advised by Dr. Frenkel. Personally, he was thoroughly convinced of the possibility of improvement by this mechanical restraint, and he adopted it as a routine measure in the hospital in most cases of hemiplegic contractures.

Dr. Virgil P. Gibney apologized for not having posted himself on the treatment of tabes, as practiced by Dr. Frenkel; his only apology was that he regarded the disease itself, from his own standpoint, as a *noli me tangere*. He had never seen anything in orthopedics which would help in tabes except after resolution of the disease itself. He believed there were a great many convalescents improved by mechanical appliances. He had been assured by neurological friends associated with him that the muscular power could be restored by this method. He was not quite sure whether he understood Dr. Frenkel correctly when he said that in the contractures of poliomyelitis division of the tendons resulted frequently in loss of power. He was inclined to believe that he misunderstood the doctor. If there was anything of which Dr. Gibney was firmly convinced in his mind it was that lengthening the tendons in poliomyelitis by tenotomy did not impair their function. This was almost self-evident, after long observation of these cases. He knew that this impression prevailed among the laity, and also among certain physicians. He believed that often the neurologists would be very glad to have the tendons divided in order that the foot might be brought to a right angle with the leg, and so get a useful limb. Such a division does bring about the desired result, and in the same way does division of the muscles about the hip and leg. Dr. Gibney said that he could imagine that a very free division of the sartorius, the adductors and other muscles about the hip, might result in a dangling leg, thus making the patient worse. But when one found the muscles shortened, making it almost impossible for the patient to stand erect because of an extreme lordosis, he sometimes questioned whether it would not be better for the patient to have a dangling limb rather than a hideous deformity. He had failed to see good in these cases result from massage or manual traction.

Regarding atrophy of muscles caused by steel bands or other restraining appliances, he said he had seen many cases where illy-constructed appliances to palsied limbs had caused atrophy of the muscles; yet it was hardly fair to call such apparatus orthopedic appliances; they were the appliances of the shops. The ordinary orthopedic surgeon applied an apparatus for the relief of a dangle limb, the result of a poliomyelitis, aimed to get the points of support away from the muscles. The orthopedic surgeon's idea was to limit the motion in such joints as the hip, knee and ankle; it was believed that such a strain on the joints, by distortion of the limbs, and by hideous positions on the floor or on the bed, retarded repair and frequently rendered the patient more helpless. Thus the hip muscles stretched over night, while the patient slept with the limbs hyperextended, so that the heels touched the buttocks. The ligaments of the knee were likewise strained, and what little power remaind in those muscles was exhausted. Direct relief is not claimed for such an apparatus; it does not *per se,* develop the muscles, but it does enable the patient to assume the upright position, thus improving the circulation in the limbs, and preventing those fibres not wholly destroyed by the disease from overstrain. It also helps the masseuse and medical gymnasts to carry on their work better, and the neurologist to better reorganize power in muscles when relieved of tension.

Dr. George W. Jacoby said he was very much interested in the final remarks of Dr. Frenkel that neurologists would lose their occupation unless they gave up the systematic treatment of disease and paid more attention to experimental, bacteriological, and biological investigations, asking them to first take up the causal relationship in nervous diseases. Much attention has been given and is being bestowed the world over upon the etiology of nervous diseases; bacteriology and biology are special subjects for which the neurologist will find little time, considering the demands already made upon him. Neurology is by no means barren of practical results, and he had no fear that it would be absorbed by general medicine. Dr. Jacoby thought that Dr. Frenkel's attitude towards the mechanical treatment of nervous diseases had perhaps been too skeptical, except in his attitude toward the treatment of ataxia in tabes, about which he is very enthusiastic, and with cause.

In the mechanical treatment of nervous diseases, it seemed to Dr. Jacoby that two distinct lines could be drawn on the treatment of affections of the peripheral neurone; *i. e.,* in affections of the peripheral nerves, of the muscles, and of the anterior horns we were able to accomplish most by mechanical means. If we waited until the acute process had passed, we were able to make the muscular fibers yet existing do double work, making them take the place of the complete muscles in certain groups, and thus causing marked functional improvement in certain patients. He also believed that in the early stages of poliomyelitis, by placing the limbs in a certain position, so as to cause a relaxation of the antagonists, we could prevent the contraction of these antagonists, a condition which is the cause of so much trouble.

When, on the other hand, we were dealing with disease of the motor tracts, we confronted an entirely different question. Here, excepting in those muscles which were bilaterally innervated, we could do nothing. If they were bilaterally innervated, nature could be aided and the opposite centres could be made to do the work of the two.

In the treatment of tabic ataxia the question too was entirely different; here it was not a question of the treatment of motor impulses, but a question of treatment of sensory defects. So long as the limb has a minimum of sensibility, Dr. Frenkel can re-educate the muscles, by means of this remaining amount of sensibility, and he could by this means convey to the central organs the knowledge of the position of the limbs. He made the minimum sensibility do the work of the entire amount that previously existed. This whole question Dr. Jacoby said was a very interesting one.

DISTURBANCES OF VISION IN A HYSTERICAL PATIENT, PRODUCED BY EXAGGERATION OF BINOCULAR ASSOCIATION.

By Prof. Pierre Janet, of Paris.

Dr. E. Gruening said that it gave him great pleasure to open a discussion on Dr. Janet's paper, because we should then have an opportunity to hear him speak again in closing the discussion. He said he was especially indebted to the Neurological Society for the invitation to be present to hear the classic and plastic recital of this remarkable case of hysteria. The eye is a favorite arena of functional disturbances due to hysteria, whether they present an exaggeration, or what Dr. Janet calls a deficit of function. Every oculist is more or less familiar with various phases of hysterical manifestations in the organ of sight. Thus we may observe complete blindness of one or both eyes, without anatomical substratum, diplopia, homonymous or heteronymous, due to fleeting paralysis or contraction of the one or the other ocular muscle, narrowing of the visual field to such a degree that only central vision remains, and the patient may read the finest print, yet be unable to find his way about. The manifestations are of so protean a character, and so impossible of explanation on physiological grounds that psychology has been called into service to supply working hypotheses. In hysteria, as in a fairy-tale, everything is possible, and the "nil admirari" on the part of the physician is nowhere more applicable than in its manifestations. Dr. Gruening said it would have been interesting to have had a chart of the visual field of that particular patient. Dr. Janet had not mentioned whether or not the field had been taken. The theory that the patient did not see with her good eye, because she hungered for binocular vision, and for this reason could not make use of her monocular sight was interesting, but not borne out in practice. People who lose one eye, have, as a rule, no difficulty in adjusting the remaining eye to the demands of their occupations. This, of course, does not apply to a case of hysteria, because almost anything can happen in this fourth dimension of medicine.

Dr. Gruening, in concluding his remarks, said he wished to state that to hear Dr. Janet present a case was a rare literary treat.

Dr. Pearce Bailey said that the history of the case reported by Prof.

Janet illustrated well the new lines of work being done abroad and in this country. Namely, the case of a woman with atrophy of the optic nerve of one side, the other side being normal who nevertheless was unable to see. Sight was restored after a careful analysis of all the psychological conditions which could account for its loss of vision, and applying appropriate means to counteract them. We are much indebted to Dr. Janet for analyzing functional cases hitherto unobserved and unstudied, showing the necessity for a careful analysis and study of every psychic symptom, and after a complete study of the case, applying the correct psychic remedy. The case reported by Dr. Janet was a good example of his work, and Dr. Bailey emphasized strongly the value of this work, which he had done for years in the Salpêtrière.

Dr. B. Onuf related a case which, although not of the same character as the one reported by Dr. Janet, seemed to belong to the same class. It illustrated how in a hysterical patient a group of physiological functions normally under conscious control may by habit hypertrophy detach itself from conscious guidance as to almost form an automatism of its own.

The case was one of a girl, with hysterical stigmata, such as contraction of the visual fields and analgesias and thermo-hypesthesias of a regional character, who on the basis of a slight refractional error (viz., a myopic astigmatism of one-half diopter of both eyes, combined in one eye with a myopia of one-quarter diopter), developed a spasm of the apparatus of fixation, *i. e.*, convergent squint, contraction of the pupils and spasm of accommodation. When seen, she had, in addition to this, a marked blepharospasm. The latter was regarded as grafted on the spasm of the apparatus of fixation through the habitual contraction of the pupils, which formed part of the spasm. This habitual smallness of the pupils made the retinas over-sensitive to light. When in the course of the disease the wearing of glasses, correcting the refractional error, had led to a subsidence of the spasm of fixation, and with it to a dilatation of the pupils, the increased influx of light thus resulting gave rise to an exaggerated form of the reaction normally following such increased exposure of the retina to light; namely, a blepharospasm.

Dr. Adolf Meyer said that the two guests of the night, who came from abroad, had brought reports in a field of neurology which, fifteen years ago, would have received but little thought and probably would have met with little hope; namely, the field of the functional consideration of neurology. So much had to be and could be done in the anatomical sphere and in localization that naturally study went in that direction. While it was not so very long ago that it was stated that neurology had about reached its limits, Dr. Meyer thought that they were beginning to see a widening horizon, even though there were limitations to the anatomical consideration. We must learn to study functions, as a condition for further function. Both Dr. Frenkel and Prof. Janet had shown clearly along what principles these studies must be made and how they were to be applied. This did not only pertain to the fields they had touched on; it held as well in the domain of psychiatry. Dr. Meyer commented on the brilliant presentation of Dr. Janet on how necessary it was to enter patiently upon the details of the individual's reactions, in order to reach the disturbing factors, and what is needed to build with, and how we should not mind merging in the use of hypotheses, etc.